

REPLACEMENT ABSTRACT

Methods and systems for improving the operation of a transmission for an automotive vehicle ~~, and in particular the transmission as installed by the original automobile manufacturer,~~ are provided for modifying the original hydraulic circuits to increase the capacity or holding ability of the low and reverse clutches when the transmission is shifted into manual low gear to slow down a moving vehicle, ~~and~~ to provide a quick and smooth apply of the low and reverse clutches when the driver selects manual low when the vehicle is moving at a relatively high road speed ~~→ . Further modifications to the transmission installed by the original automobile manufacturer~~ and to permit the connection of two low hydraulic circuits to feed torque converter and cooler/lubrication circuits by application of relatively low fluid pressure to assure that the necessary pressure required to connect the circuits will be properly applied ~~, notwithstanding any leaks in the hydraulic circuitry or wear on the components of the hydraulic circuitry which might adversely affect the application of the pressure necessary to connect the hydraulic circuitry.~~

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Applicant also owns the following pending United States patent applications: Serial No. 10/081,605, filed February 21, 2002 (now U.S. Patent No. 6,871,397, issued March 29, 2005); Serial No. 10/105,674, filed March 25, 2002 (now U.S. Patent No. 6,699,157, issued March 2, 2004) ; Serial No. 10/348,846, filed January 22, 2003 (now U.S. Patent No. 6,729,989, issued May 4, 2004); Serial No. 10/360,576, filed February 7, 2003(now U.S. Patent No. 6,814,680, issued November 9, 2004); and Serial No. 10/678,924, filed October 3, 2003.

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~~FIGURE 1 illustrates~~ FIGURES 1A - 1D illustrate the hydraulic circuitry of a 4R100 automotive transmission, as modified in accordance with the present invention;

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The hydraulic circuitry of the automotive transmission illustrated by FIGURES 1 and 2 of the drawing includes a manual valve designated by reference numeral 2. When manual low gear is selected by the driver of the vehicle at relatively high road speeds, the manual valve 2 feeds main line oil pressure to fluid flow passageways designated by reference numerals 4 and 6. The manual valve 2 is in fluid communication with the passageways 4 and 6 by a fluid flow channel designated by reference numeral 8. Fluid flow passageway ~~4~~ 6 permits full flow of fluid therethrough, while fluid flow passageway ~~6~~ 4 has a restricted diameter (.056 inches in the "factory installed" transmission) for restricting fluid flow through this passageway.